Abstract

Semiconductor-on-insulator substrate comprising a buried diamond-like layer and method for making same

The substrate successively comprises a base (1), a diamond-like carbon layer (3), a dielectric layer (4) and a semi-conducting material layer (5) which is designed to constitute microelectronic elements. A nucleation layer (2) is preferably disposed between the base (1) and the diamond-like carbon layer (3). The dielectric material (4) is chosen such that the upper level (Edi) of the valence band of the dielectric material (4) is lower than the upper level (Ecd) of the valence band of the diamond-like carbon (3). The semi-conducting material (5) is chosen such that the upper level (Esc) of the valence band of the semi-conducting material (5) is higher than the upper level (Ecd) of the valence band of the diamond-like carbon (3). The substrate can be achieved by successive depositions or by assembly of first and second stacks.

(Figure 1)